

ATTACHMENT A
FIELD PROCEDURES

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The following section describes procedures used by field personnel in the performance of groundwater sampling.

Groundwater Level and Total Depth Determination

A water/product interface probe is lowered down the well and a measurement of the depth to water from an established reference point on the casing is taken. The indicator probe is used to sound the bottom of the well and a measurement of the total depth of the well is taken. Both the water level and total depth measurements are taken to the nearest 0.01-foot. If measurable free product is noted in the bailer, a water/product interface probe is used to determine the thickness of the free product to the nearest 0.01-foot. The thickness of free product is determined by subtracting the depth to product from the depth to water.

Monitoring Well Purging and Sampling

Monitoring wells are purged by removing approximately four casing volumes of water from the well using a clean disposable bailer or electrical submersible purge pump. Purge volumes are calculated prior to purging. During purging, the temperature, pH, and electrical conductivity of the purge water are monitored. The well is considered to be sufficiently purged when the three casing volumes have been removed; the temperature, pH, and conductivity values have stabilized to within 10% of the initial readings; and the groundwater being removed is relatively free of suspended solids. After purging, groundwater levels are allowed to stabilize to within 80% of the initial water level reading. A water sample is then collected from each well with a clean, disposable polyethylene bailer. If the well is bailed or pumped dry prior to removing the minimum amount of water, the groundwater is allowed to recharge. If the well has recharged to within 80% of the initial depth to water reading within two hours, the well will continue to be purged until the minimum volume of water has been removed. If the well has not recharged to at least 80% of the initial depth to water reading within two hours, the well is considered to contain formational water and a groundwater sample is collected. Groundwater removed from the well is stored in a 1,500-gallon tank at the site pending disposal.

In wells where free product is detected, the wells will be bailed to remove the free product. An estimate of the volume of product and water will be recorded, a final free product thickness measurement will be taken and a groundwater sample will not be collected.

Groundwater samples stored in 40-milliliter vials are tilted and filled slowly until an upward convex meniscus forms over the mouth of the vial. The Teflon™ side of the septum (in cap) is then placed against the meniscus, and the cap is screwed on tightly. The sample is then inverted and the bottle is tapped lightly to check for air bubbles. If an air bubble is present in the vial, the cap is removed and more sample is transferred from the bailer. The vial is then resealed and rechecked for air bubbles. The sample is then appropriately labeled and stored on ice from the time of collection through the time of

delivery to the laboratory. If the samples cannot be delivered directly to the laboratory, samples are transported (on ice) to TRC's office and stored in a designated sample refrigerator until transportation to the laboratory (on ice) is possible. The chain-of-custody form is completed to ensure sample integrity. Groundwater samples are transported to a state-certified laboratory and analyzed within the U.S. Environmental Protection Agency-specified hold times for the specified analytes.

Decontamination

Purging and sampling equipment that could contact well fluids is either dedicated to a particular well or cleaned prior to each use in a Liqui-nox and potable water solution and rinsed twice in clean potable water.